

REMARKS

Claims 1-22 and 45-48 are currently pending in the application, of which claims 1, 9, 16, 45, and 46 are independent. Claims 1, 9, 16, 45 and 46 are amended herein, and claims 5-7, 13-15 and 20-22 are canceled without prejudice or disclaimer. New claims 49-51 are added. The new claims include subject matter formerly found in claims 1, 9, and 16, respectively. Accordingly, no new matter is added. Support for the claim amendments may be found throughout the application as originally filed, and specifically at pages 15-16.

In the Office Action:

claims 1-22 and 45-48 were rejected under 35 U.S.C. § 102(a) as being anticipated by Sauro et al., “Next Generation Simulation Tools: The Systems Biology Workbench and BioSPICE Integration,” Journal of Integrative Biology, vol. 7, No. 4, 2003, p. 353-370 (hereafter “Sauro”);

claims 1-5, 8-11, 14-17, 20-22, 45 and 48 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hucka et al., “The Erato Systems Biology Workbench: Enabling Interaction and Exchange Between Software Tools for Computational Biology,” Pacific Symposium on Biocomputing, vol. 7, 2002, p. 450-461 (hereafter “Hucka”);

claims 1-22 and 45-48 were provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-19, 26 and 64 of co-pending Application No. 10/783,628; and

claims 1-22 and 45-48 were provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-19, 32 and 38-39 of co-pending Application No. 10/783,552.

Applicants respectfully traverse the rejections for at least the reasons below.

35 U.S.C. § 102 Rejections**Rejections under Sauro**

Claims 1-22 and 45-48 were rejected under 35 U.S.C. § 102(a) as being anticipated by Sauro. Applicants respectfully traverse the rejection.

Applicants amend claim 1 in order to expedite prosecution. Applicants respectfully urge that Sauro fails to disclose or suggest at least the following features of claim 1: ***the graphical model of the biological system comprising at least one chemical reaction, the at least one chemical reaction represented using a wild card character that allows multiple instances of an expression to be identified using a single reaction, and a merge block having an input and an output, the output of the merge block at a time step during an execution of the graphical model being equal to a most recent input provided to the merge block; and generating as output dynamic behavior of the biological system by using the merge block and the at least one chemical reaction to produce a set of reactions described by the multiple instances of the expression.***

As described in the Specification at pages 15-16, using a wild card character to identify multiple instances of an expression, in conjunction with a merge block that outputs its most recent input, may allow multiple variations of a chemical reaction to be represented simply and compactly. As a result, multiple sets of reactions may be represented and executed with minimal input, especially if a database or other information source is used to populate values for the reaction, as described on page 21 of the Specification.

Applicants respectfully submit that Sauro does not disclose or suggest at least the above-quoted features of claim 1. Sauro describes Systems Biology Workbench (SBW) which is a message-passing resource-sharing framework that connects different applications or “modules” (Sauro at page 355, “Materials and Methods” and page 356, Figure 1, showing the SBW Broker passing messages between three different modules). The system described in Sauro allows a user to design a model of a biological system; however, Sauro is silent at least with respect to ***at least one chemical reaction represented using a wild card character that allows multiple instances of an expression to be identified using a single reaction and a merge block having an input and an output, the output of the merge block at a time step during an execution of the graphical model being equal to a most recent input provided to the merge block***, and further using the chemical reaction having a wild card character and the merge block ***to produce a set of reactions described by the multiple instances of the expression***.

Claims 9, 16, 45, and 46 are amended to recite subject matter similar to the above-quoted features of claim 1. Accordingly, Applicants respectfully submit that Sauro does not disclose each and every element of claims 9, 16, 45, and 46.

Claims 2-8 depend from and incorporate all of the features of claim 1. Thus, claims 2-8 are patentable for at least the same reasons as set forth above for claim 1. Claims 10-15 and 48 depend from and incorporate all of the features of claim 9. Thus, claims 10-15 and 48 are patentable for at least the reasons set forth above for claim 9. Claims 17-22 depend from and incorporate all of the features of claim 16. Thus, claims 17-22 are patentable for at least the reasons set forth above for claim 16. Claim 47 depends from and incorporates all of the features of claim 46. Thus, claim 47 is patentable for at least the reasons set forth above for claim 46.

Accordingly, Applicants respectfully urge that the Examiner reconsider and withdraw the above 35 U.S.C. § 102(a) rejection of claims 1-22 and 45-48.

Rejections under Hucka

Claims 1-5, 8-11, 14-17, 20-22, 45 and 48 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hucka. Applicants respectfully traverse the rejection.

Applicants respectfully urge that Hucka fails to disclose or suggest at least the following feature of claim 1: ***the graphical model of the biological system comprising at least one chemical reaction, the at least one chemical reaction represented using a wild card character that allows multiple instances of an expression to be identified using a single reaction, and a merge block having an input and an output, the output of the merge block at a time step during an execution of the graphical model being equal to a most recent input provided to the merge block***; and ***generating as output dynamic behavior of the biological system by using the merge block and the at least one chemical reaction to produce a set of reactions described by the multiple instances of the expression***.

Like Sauro, Hucka describes the Systems Biology Workbench (SBW) framework. Applicants respectfully urge that Hucka is also silent with respect to the above-quoted features of claim 1.

Claims 9, 16, 45, and 46 are amended to recite subject matter similar to the above-quoted features of claim 1. Accordingly, Applicants respectfully submit that Sauro does not disclose each and every element of claims 9, 16, 45, and 46.

Claims 2-5 and 8 depend from and incorporate all of the features of claim 1. Thus, claims 2-5 and 8 are patentable for at least the same reasons as set forth above for claim 1. Claims 10-11, 14-15, and 48 depend from and incorporate all of the features of claim 9. Thus, claims 10-11, 14-15, and 48 are patentable for at least the reasons set forth above for claim 9. Claims 17 and 20-22 depend from and incorporate all of the features of claim 16. Thus, claims 17 and 20-22 are patentable for at least the reasons set forth above for claim 16.

Accordingly, Applicants respectfully urge that the Examiner reconsider and withdraw the above 35 U.S.C. § 102(a) rejection of claims 1-5, 8-11, 14-17, 20-22, 45 and 48.

Double Patenting Rejections

In the Office Action, the Examiner has provisionally rejected claims 1-22 and 45-48 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-19, 26 and 64 of co-pending United States Patent Application Number 10/783,628 (Attorney Docket No. MWS-108). Since the rejection is provisional, Applicants will submit a terminal disclaimer, if necessary, when the pending claims are deemed allowable.

In the Office Action, the Examiner has further provisionally rejected claims 1-22 and 45-48 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-19, 32 and 38-39 of co-pending United States Patent Application Number 10/783,552 (Attorney Docket No. MWS-109). Since the rejection is provisional, Applicants will submit a terminal disclaimer, if necessary, when the pending claims are deemed allowable.

CONCLUSION

In view of the above, Applicants urge that the pending application is in condition for allowance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicants' attorney at (617) 227-7400.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. MWS-110RCE2. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. §1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

Dated: February 18, 2010

Respectfully submitted,

Electronic signature: /Kevin J. Canning/
Kevin J. Canning
Registration No.: 35,470
LAHIVE & COCKFIELD, LLP
One Post Office Square
Boston, Massachusetts 02109-2127
(617) 227-7400
(617) 742-4214 (Fax)
Attorney/Agent For Applicants